

Llagas Creek Bridge
Spanning Llagas Creek
Gilman Road at Holsclaw Road
Gilroy vicinity
Santa Clara County
California

HAER No. CA-45

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Western Region
National Park Service
Department of the Interior
San Francisco, California 94102

HISTORIC AMERICAN ENGINEERING RECORD

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Llagas Creek Bridge

HAER No. CA-45

Location: Spanning Llagas Creek on Gilman Road at the intersection of Holsclaw Road, just east of Gilroy, Santa Clara County, California

UTM: 10.629565.4097695
Quad: Gilroy, California

Date of Construction: 1911. Altered 1932.

Present Owner: Santa Clara County Transportation Agency
1555 Berger Drive
San Jose, California 95112

Significance: The Llagas Creek Bridge is associated with the life of designing engineer John G. McMillan, and represents a type, period, and method of construction. It was determined eligible for inclusion in the National Register of Historic Places in 1982 under Criterion C at the local level as an early, and locally rare, example of reinforced concrete bridge construction.

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HISTORY

In 1909, Alvah Gillman petitioned for the establishment of a new public highway to begin at Sixth Street in Gilroy and cross the lands of the Los Animas and San Joaquin Land Company and those of Mrs. Martha Oldham. The Llagas Creek Bridge was built as an element of that highway, to a design executed by County Surveyor John G. McMillan.

John Gilmore McMillan served as Santa Clara County Surveyor from 1890 to 1914. His parents had emigrated from Scotland to America in the 1840s, settling in Rhode Island. In 1852, his father, William, went to California by way of Panama and undertook mining in Butte County near Bidwell's Bar. In 1856, William sent for his wife, Sarah, and their children to join him in California. Among the children was John, who had been born on July 11, 1851, in Bristol, Rhode Island. John attended school in Butte County and was exposed to mining engineering in his youth. After also attending the State Normal School in San Jose, he began teaching while, at the same time, undertaking studies of civil engineering and surveying. In 1874, he moved to Sutter County where, in 1877, he was elected to the first of two terms as County Surveyor. His second term was cut short due to ill health, which forced his resignation. Beginning in 1883, the Central Pacific Railroad employed him as a surveyor in locating work and, later that year, he served as assistant construction engineer on the Market Street Railway in San Francisco. 1884 found him in Guatemala working as a civil engineer on the Guatemala Central Railroad. After a year in Central America, he returned to California, where a French syndicate engaged him in the location and construction of a system of reservoirs and flumes for hydraulic mining activities in the northwestern part of the state. Then, from 1886 to 1890, Leland Stanford employed McMillan as Chief Engineer for the Stanford properties. Most of his work in this capacity involved surveys and early construction work at Stanford University.

In 1890, McMillan entered office as Santa Clara County Surveyor, a post he held until 1914. During his first term of office, he began a system of concrete bridges in the county. This was just one year after Ernest L. Ransome built the first reinforced concrete bridge in the United States in San Francisco's Golden Gate Park. Thus, McMillan must be considered one of the pioneer users of concrete for bridges. (At the same time, McMillan also handled all of the county's plans for steel and timber bridges.) Unlike Ransome, whose work was in steel-reinforced concrete, McMillan was unsure of the action of concrete in an arch, and so his first concrete bridge over Penitencia Creek in 1891 utilized four rowlock brick arch rings, with concrete sidewalls and abutments. He built similar bridges in 1896 and 1897. In 1903, he began to use steel reinforcement. By 1909, there were 35-40 concrete and stone masonry bridges in the county. Many of McMillan's bridges used fieldstone facing to harmonize with the setting and to reduce the cost of labor (for formwork) and cement.

In addition to his pioneering work with concrete bridges, McMillan also held the patent for a floor system for bridges and wharves. This system used timber planks fastened together with spikes and further bound with steel rods to prevent separation of the planks. This subfloor was then covered with concrete or asphalt which was compacted to fill any spaces between the planks. This system provided an extremely waterproof floor, extending the life of the timber elements. McMillan's floor system was used in Santa Clara, San Joaquin, Sacramento and Ventura counties.

In 1914, McMillan resigned his post as County Surveyor to join his sons in a consulting civil engineering firm. On February 14, 1935, John C. McMillan, member of the Technical Society of the Pacific Coast and life member of the American Society of Civil Engineers, died at home after a brief illness. He was buried at Alta Mesa Cemetery in Palo Alto, California.

DESCRIPTION OF BRIDGE

The Llagas Creek Bridge, Bridge No. 37C-537, is described as a combination of reinforced concrete, haunched, rigid frame and arch, with haunched T-girders framing into abutment walls; the abutments are founded on timber piles. Separate abutment support walls parallel each girder with earth retaining walls spanning between. The bridge totals 86 feet in overall length with a single 64-foot span, is 23 feet in width and carries a two-lane, 19.3-foot roadway between solid concrete parapet railings, crossing Llagas Creek at right angles (no skew). In 1932, the original east endposts were demolished and new, flared approach railings were constructed to better facilitate traffic movements at the intersection of Cilman and Holsclaws Roads; the railings and new endposts were designed to match the original railings and endposts.

SIGNIFICANCE OF BRIDGE

The Llagas Creek Bridge possesses integrity of setting, materials, workmanship, feeling, and association. Integrity of design is only very slightly compromised by the 1932 modifications to the east approach. The bridge is associated with the life of a person significant in our past--designing engineer John C. McMillan. It represents a type (haunched T-girder with arched deck), period (early 20th century) and method of construction (poured-in-place reinforced concrete). It was determined eligible for the National Register of Historic Places on March 31, 1982, under Criterion C, as an early, and locally rare, example of reinforced concrete bridge construction.

PROJECT INFORMATION

A proposed project will replace the Llagas Creek Bridge, resulting in its demolition. The Federal Highway Administration is the Federal agency involved, providing funding to the Santa Clara County Transportation Agency through the Highway Bridge Replacement and Rehabilitation Act. The Llagas Creek Bridge has been given a Structural Sufficiency Rating of 6.3. A sufficiency rating below 50 warrants placement on the Federal Bridge Replacement List. Due to its structural deficiencies and narrow width, the Llagas Creek Bridge was placed on the Federal Bridge Replacement List in 1980.

The bridge's concrete quality is only fair and is approaching a marginal condition. It has poor sight lines due to its vertical curve and, with its narrow width, the bridge acts as a bottleneck on Gilman Road. A new bridge is required to safely accommodate normal traffic and legal loads. The new bridge, with its increased width and lacking the present vertical curve, will provide a safer structure for motorists. In addition, construction of the new bridge will allow channel improvements to Llagas Creek to enhance flow conditions.

The proposed project entails the replacement of the existing bridge with a 36-foot wide, 144-foot long reinforced concrete bridge. The new bridge will be on the same alignment and grade as the existing road. A small amount of new right of way will be required for a temporary easement to construct a temporary detour during construction. The detour is planned for the south side of the existing road. The estimated cost of the proposed project is \$590,000.

Mitigation of the adverse effect caused by removal of the Llagas Creek Bridge will consist of the following, as set forth in a Memorandum of Agreement among the Advisory Council on Historic Preservation, the California State Historic Preservation Office and the Federal Highway Administration.

Prior to the demolition of the Llagas Creek Bridge, the property will be recorded, so that there will be a permanent record of its existence and history. All documentation must be acceptable to the Historic American Engineering Record (HAER) prior to demolition. Copies of the documentation will be provided to the California State Historic Preservation Office, the San Jose Historical Society, and the Gilroy Historical Museum, following acceptance by HAER.

The foregoing, with attached photographs, comprises the required recordation.

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